Dkt. 1784/53661-AA/JPW/AJM/MML

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Stewart Shuman et al.

Serial No. : 10/666,486

Filed :September 19, 2003

FOR : TOPOISOMERASE-BASED REAGENTS AND METHODS FOR

MOLECULAR CLONING

1185 Avenue of the Americas New York, NY 10036 December 23, 2003

Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450

Sir:

INFORMATION DISCLOSURE STATEMENT

In accordance with their duty of disclosure under 37 C.F.R. \$1.56, applicants request that the following disclosures be made of record in the above-identified application pursuant to 37 C.F.R. \$1.97(b). These references are also listed on the Form PTO-1449 attached hereto as **Exhibit A**. Copies of items 1, 2 and 13 are attached hereto as **Exhibits 1-3**, respectively. The remaining items were previously submitted in connection with prior application U.S. Serial No. 09/096,927.

- U.S. Patent No. 6,653,106, Shuman et al., issued November
 25, 2003 (Exhibit 1);
- U.S. Patent No. 6,548,277, Shuman et al., issued April 15, 2003 (Exhibit 2);
- U.S. Patent No. 6,238,884, Short et al., issued May 29, 2001;

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- 4. U.S. Patent No. 6,280,977, Liang et al., issued August 28, 2001;
- 5. U.S. Patent No. 6,291,213, Rothstein et al., issued September 18, 2001;
- 6. U.S. Patent No. 5,746,997, Reed M.W., issued May 5, 1998;
- 7. U.S. Patent No. 5,766,891, Shuman et al., issued June 16, 1998;
- U.S. Patent No. 5,624,826, Kato et al., issued April 29, 1997;
- 9. U.S. Patent No. 4,800,159, Mullis et al., issued January 24, 1989;
- 10. U.S. Patent No. 4,661,450, Kempe et al., issued April 28, 1987;
- 11. PCT International Application No. PCT/US01/26294, Publication No. WO 02/16594, published February 28, 2002;
- 12. PCT International Application No. PCT/US01/05657, Publication No. WO 01/62892, published August 30, 2001;
- 13. PCT International Application No. PCT/US01/05745,
 Publication No. WO 01/62943, published August 30, 2001
 (Exhibit 3);
- 14. PCT International Application No. PCT/US99/19413, Publication No. WO 00/12687, published March 9, 2000;
- 15. PCT International Application No. PCT/US00/06560, Publication No. WO 00/56878, published September 28, 2000;

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- 17. PCT International Application No. PCT/US98/11671, Publication No. WO 98/55502, published December 10, 1998;
- 18. PCT International Application No. PCT/US98/12372, Publication No. WO 98/56943, published December 17, 1998;
- 19. PCT International Application No. PCT/US97/00368, Publication No. WO 97/24455, published July 10, 1997;
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- 24. European Application No. 89313030.2, Publication No. EP 0 373 914 B1, published July 13, 1994;
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No fee is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any fee is required, authorization is hereby given to charge the amount of such fee to Deposit Account No. 03-3125.

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If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorneys invite the Examiner to telephone them at the number provided below.

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Alan J. Morrison Reg. No. 37,399 2 23 03 Date

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Serial No. Atty. Docket No. Form PTO-1449 U.S. Department of Commerce 53661-AA/JPW/AJM/MML 10/666,486 Patent and Trademark Office Applicants Stewart Shuman et al. Filing Date INFORMATION DISCLOSURE STATEMENT Group September 19, 2003 (Use several sheets if necessary) U.S. PATENT DOCUMENTS **Document Number** Date Examiner Name Class Filing Date Subclass Initial if Appropriate 6 6 5 3 1 0 6 11/25/2003 Shuman et al. 435 91.1 8 5 4 2 7 7 4/15/03 Shuman et al. 435 91.4 435 69.1 3 2 8 8 4 5/29/01 Short et al. 435 91.2 7 6 2 8 9 7 8/28/01 0 Liang et al. 435 91.2 2 2 1 3 9/18/01 Rothstein et al. FOREIGN PATENT DOCUMENTS **Document Number** Date Country Class Subclass Translation Yes No wo| 0 | 2 6 5 4 2/28/02 **PCT** wol o 1 6 2 8 2 8/30/01 **PCT** wol o 3 1 6 2 4 8/30/01 **PCT** C12N 15/00 wol o 0 2 7 6 8 3/9/00 **PCT** C12N 15/10 wo 0 0 5 6 PCT 8 8 9/28/00 **QTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)** Arnott et al. "DNA-RNA hybrid secondary structures," J. Mol. Biol. 188(4):631-640 (1986); Carninci et al. "High efficiency selection of full-length cDNA by improved biotinylated cap trapper," DNA Research 4:61-66 (1997); Carninci et al. "High-efficiency full-length cDNA cloning by biotinylated CAP trapper," Genomics 37(3):327-36 (1996); Cheng and Shuman, "A catalytic domain of eukaryotic DNA topoisomerase I." J. Biol. Chem. 273(19):115898-95 (1998); Cheng and Shuman, "DNA strand transfer catalyzed by vaccinia topoisomerase: ligation of DNAs containing a 3' mononucleotide overhang," Nucleic Acids Res. 28(9):1893-8 (2000); Cheng and Shuman, "Recombinogenic flap ligation pathway for intrinsic repair of topoisomerase IBinduced double-strand breaks," Mol. Cell. Biol. 20(21):8059-8068 (2000); **EXAMINER** DATE CONSIDERED *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this from with next communication to applicant.

Atty. Docket No. Serial No. Form PTO-1449 U.S. Department of Commerce 53661-AA/JPW/AJM/MML 10/666,486 **Patent and Trademark Office** Applicants Stewart Shuman et al. Filing Date INFORMATION DISCLOSURE STATEMENT Group (Use several sheets if necessary) September 19, 2003 U.S. PATENT DOCUMENTS Examiner **Document Number** Date Name Class Subclass Filing Date Initial if Appropriate 5 7 4 6 9 9 7 5/5/98 Reed, M.W. 5 6 6 8 9 1 6/16/98 Shuman et al. 435 91.4 06/06/95 5 2 4 8 2 6 4/29/97 Kato et al. 6 435 172.3 12/17/86 4 9 8 0 1 5 0 1/24/89 Mullis et al. 435 172.3 05/03/83 4 5 0 4/28/87 Kempe et al. FOREIGN PATENT DOCUMENTS **Document Number** Date Country Subclass Translation Class Yes No C12N 15/10 wol 9 0 2 5/14/98 **PCT** 2 C07K 5/00 WO 8 5 5 5 0 2 12/10/98 **PCT** C12P 19/34 WO 9 8 5 9 3 6 4 12/17/98 **PCT** WO 7 2 5 9 4 5 7/10/97 4 **PCT** C07K 14/07 WO 7 9 6 1 9 4 9 6/27/96 **PCT** OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) Cheng and Shuman, "Site-specific DNA transesterification by vaccinia topoisomerase: Role of specific phosphates and nucleosides," Biochemistry 38(50):16599-612 (1999); Cheng et al. "Conservation of structure and mechanism between eukaryotic topoisomerase I and sitespecific recombinases," Cell 92(6):841-50 (1998); Cheng et al. "Mutational analysis of 39 residues of vaccinia DNA topoisomerase identifies Lys-220, Arg-223, and Asn-228 as important for covalent catalysis," J. Biol. Chem. 272(13):8263-9 (1997); Chong S. et al. "Single-column purification of free recombinant proteins using a self-cleayable affinity tag derived from a protein splicing element," Gene 192(2):271-281 (1997); DiGate and Marians, "Molecular cloning and DNA sequence analysis of Escherichia coli topoB, the gene encoding topoisomerase III," J. Biol. Chem. 264(30):17924-17930 (1989); Edery et al. "An efficient strategy to isolate full-length cDNAs based on an mRNA cap retention procedure (CAPture)," Mol. Cell. Biol. 15(6):3363-3371 (1995); **EXAMINER** DATE CONSIDERED *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance

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